ABSTRACT OF THE DISCLOSURE

A catalytic converter and resonator combination is contained within a common canister. The catalytic converter component is positioned upstream of the resonator component (relative to engine exhaust flow), for receiving additional heat from the engine exhaust entering the device. Preferably, the substrate element of the catalytic converter component is formed of a strong and heat resistant ceramic material, such as Dow-Corning XT (tm) or other suitable ceramic material. The use of such strong and heat resistant material allows the substrate walls to be relatively thin, thus providing a high surface area to substrate volume ratio. The passages between the substrate walls are also relatively large, thus reducing internal resistance for increased flow therethrough. Several embodiments are disclosed, with one group comprising a single exhaust unit with catalytic converter element and resonator pipe disposed concentrically. This single exhaust embodiment may use one or more concentric catalytic converter elements therein. An alternative dual exhaust embodiment incorporates two side by side resonator pipes within the single canister or shell, disposed behind one or more concentric catalytic converter elements. Yet another embodiment provides for adjustability of the resonator element within the outer shell during manufacture, allowing the device to be tuned to attenuate frequencies in a predetermined band for specific applications. The present catalytic converter and resonator combination provides a significant increase in efficiency in comparison to other exhaust treatment devices of the prior art.